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CLAIMS

- 1 1. A method for detecting targets in a plurality of target classes, the method
- 2 comprising:
- 3 configuring an over-the-horizon radar in a staring mode to monitor an area of
- 4 interest;
- 5 transmitting a radar beam on a fixed bearing at a fixed bandwidth and a fixed
- 6 waveform repetition frequency (WRF) to illuminate the area of interest;
- 7 receiving and pre-processing radar backscattered energy from the area of
- 8 interest to generate radar data;
- 9 storing the radar data in a plurality of buffers; and
- processing the buffered radar data in parallel channels to determine positions
- of targets present in the area of interest, each channel corresponding to a respective
- one of the target classes.
- 1 2. The method of claim 1 wherein buffering the received radar data comprises
- 2 buffering the received radar data in a first buffer and copying the received radar data
- 3 in the first buffer into a second buffer.
- 1 3. The method of claim 1 wherein the fixed bandwidth and the fixed WRF are
- 2 selected in response to at least one of anticipated target Doppler shifts, ionosphere
- 3 characteristics, radio frequency interference, earth and ionospheric Doppler-spread
- 4 clutter magnitude, and required target position accuracies.
- 1 4. The method of claim 1 wherein the area of interest comprises a dwell
- 2 illuminated region.
- 1 5. The method of claim 1 further comprising displaying the processed radar data
- 2 from each of the parallel channels on a respective one of a plurality of detection
- 3 displays.

- 1 6. The method of claim 1 wherein processing the buffered radar data in parallel
- 2 channels comprises separately automatically detecting and tracking, for each of the
- 3 target classes, the positions of targets in the area of interest.
- 1 7. The method of claim 6 further comprising displaying the target position and
- 2 progress for targets in at least two of the target classes in the area of interest.
- 1 8. An over-the-horizon radar system for detecting and tracking targets in a
- 2 plurality of target classes, comprising:
- a transmitter to illuminate an area of interest;
- 4 a receiver having a plurality of receive beams to detect backscattered energy
- 5 from the area of interest, the receiver pre-processing the detected backscattered
- 6 energy to generate pre-processed radar data;
- a plurality of buffers in communication with the receiver, each buffer adapted
- 8 to store the pre-processed radar data; and
- a plurality of processors each in communication with a respective one of the
- buffers, each processor adapted to process the pre-processed radar data for a
- 11 respective one of the target classes and provide class-specific target data.
- 1 9. The over-the-horizon radar system of claim 8 further comprising a plurality of
- 2 detection displays each in communication with a respective one of the processors.
- 1 10. The over-the-horizon radar system of claim 8 further comprising a plurality of
- 2 automatic detection and tracking modules each in communication with a respective
- 3 one of the processors, each automatic detection and tracking module being configured
- 4 for tracking targets in a respective target class.
- 1 11. The over-the-horizon radar system of claim 10 further comprising a
- 2 geographic situation display in communication with each of the automatic tracking
- 3 modules and adapted to display target position and progress for targets defined in the
- 4 target classes.

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- 1 12. A computer program product for detecting targets in a plurality of target
- 2 classes, the computer program product comprising a computer useable medium
- 3 having embodied therein program code comprising:
- 4 program code for pre-processing radar energy from an area of interest and
- 5 generating radar data in response thereto, the radar energy being backscattered energy
- 6 from an illumination of the area of interest by an over-the-horizon radar beam having
- 7 a fixed bandwidth and a fixed WRF;
- 8 program code for storing the radar data in a plurality of buffers; and
- 9 program code for simultaneously processing the buffered radar data in parallel
- channels to determine positions of targets present in the area of interest, each channel
- 11 corresponding to a respective one of the target classes.
 - 1 13. The computer program product of claim 12 wherein the program code for
 - 2 simultaneously processing the buffered data in parallel channels comprises a plurality
 - 3 of program code modules adapted for simultaneous execution, each program code
 - 4 module comprising program code for processing the buffered radar data in a
 - 5 respective buffer to determine positions of targets present in the area of interest for a
 - 6 respective one of the target classes.
 - 1 14. The computer program product of claim 12 further comprising program code
 - 2 for displaying the processed radar data from each of the parallel channels on a
 - 3 respective one of a plurality of detection displays.
 - 1 15. The computer program product of claim 12 wherein the program code for
 - 2 simultaneously processing the buffered radar data in parallel channels comprises
 - 3 program code for separately automatically detecting and tracking, for each of the
 - 4 target classes, the determined target positions of targets in the area of interest.
 - 1 16. The computer program product of claim 15 further comprising program code
 - 2 for displaying the target position and progress for targets in at least two of the target
 - 3 classes in the area of interest.